The Practise Ground

Class 11 Chemistry

Gas Laws

Pressure, volume, temperature and moles

1

$$P_1V_1 = P_2V_2$$

Boyle's law (temperature constant)
Pressure and volume are inversely proportional

2

$$V_1/T_1 = V_2/T_2$$

Charles's law (pressure constant)
Volume is directly proportional to kelvin temperature

3

$$P_1/T_1 = P_2/T_2$$

Gay-Lussac's law (volume constant)
Pressure is directly proportional to kelvin temperature

4

$$PV = nRT$$

Ideal gas equation
R = 8.314 J/(mol·K) = 0.0821 L·atm/(mol·K)

P	V	T	n	R
pressure	**volume**	**temperature**	**amount**	**gas constant**
atm or Pa	litre (L)	kelvin (K)	mol	see card 4

Remember

Convert temperature to kelvin: K = °C + 273.

Use the same units on both sides of the equation.

Quick example

A gas occupies 3 L at 2 atm. The pressure rises to 6 atm at constant temperature.

$V_2 = P_1V_1 / P_2 = 2 \times 3 / 6 = 1$ L

Think you've got it? Test yourself.

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